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Case Report

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Grade 2 chondrosarcoma of the middle phalanx of the third digit: a rare presentation

Yener Yoğun[1], Uğur Bezirgan[1], Seher Yüksel[2], Mehmet Armangil[1]

[1]Division of Hand Surgery, Department of Orthopedics and Traumatology, Faculty of Medicine, Ankara University, Ankara, Turkey
[2]Department, of Medical Pathology, Faculty of Medicine, Ankara University Ankara, Turkey

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Corresponding Author: Yener Yoğun, yogunyener@gmail.com

ABSTRACT

Chondrosarcoma is the most frequently seen primary malignant tumour of the hand. It is seen most often in the proximal phalanges and metacarpals, and middle phalanx involvement is rarely seen. An 80-year-old female presented at our clinic with the complaints of pain and a massive mass in the middle phalanx. On the direct radiograph, there was seen to be an expansile, permeative mass, creating a destructive, periosteal reaction with total involvement of the middle phalanx. Amputation was performed at the level of the proximal phalanx. Curettage and grafting were not considered in this case as the lesion was causing destruction and expansion in the middle phalanx. This is one of the few cases in literature of a grade 2 (intermediate) chondrosarcoma in the middle phalanx. In this case presentation, the diagnosis and treatment of middle phalanx chondrosarcoma was explained in the light of current literature.

Keywords: Bone tumour, digital chondrosarcoma, hand, middle phalanx, pathology

INTRODUCTION

Chondrosarcoma, which is produced from cartilage, is the second most frequently seen primary malignant tumour after osteogenic sarcoma.[1,2] Although it is most common in the shoulder, knee, and pelvic region, it is the most frequently seen primary malignant tumour of the hand.[3] These tumours are seen most often in the 5th and 6th decades of life, at equal rates in males and females.[3,4] Chondrosarcoma are separated into 3 main histological grades as low (grade 1), intermediate (grade 2), and high (grade 3).[1] The majority of chondrosarcoma are evaluated as low grade.

As these tumours are resistant to chemotherapy and radiotherapy, surgical treatment is applied irrespective of localisation 4. Curettage and resection or extremity amputation are among the tre atment options. Recurrence rates with curettage treatment of the lesion are higher compared to other treatments.[5] These tumours can metastasize but metastases are not often seen.[6,7]

Approximately 50% of chondrosarcomas of the hand affect the phalangeal bone 3. From a scan of literature, approximately sixty articles were found related to phalangeal chondrosarcoma, and of these very few included the middle phalanx. In this case presentation, the clinical presentation of middle phalanx chondrosarcoma, which is seen extremely rarely in literature, was discussed in the light of current literature.

CASE REPORT

An 80-year-old female presented with complaints of swelling, slight redness, and pain in the third finger of the left hand. The complaints had started one year ago and had worsened in the last 6 months. The patient had decided to seek medical help as there had started to be limited movement in the adjacent fingers. It was learned that 10 years previously, the patient had presented at another centre with the complaints of pain and minimal swelling. The patient had been told it was a benign mass, and curettage and grafting had been applied. Unfortunately, the previous tests, operation report and pathological diagnosis were unavailable. The patient had not received any medical treatment. On presentation at our clinic there was massive swelling and redness in the middle phalanx of the third finger on the left hand. With palpation, there was sensitivity in the middle phalanx. The active and passive joint range of movements were limited and painful in the proximal and distal phalanges of the left-hand 3rd finger, and there was an amount of restricted movement in the proximal and distal interphalangeal joints of the 2nd and 4th fingers of the left hand. On the direct radiograph taken, there was seen to be an expansile, permeative mass, creating a destructive, periosteal reaction with total involvement of the middle phalanx (**Figure 1**).

Finger amputation and metacarpal ray resection was recommended to the patient for better functional results. The patient did not accept metacarpal resection so was given full information about the surgical details, and future functional

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Figure 1. An expansile, permeative mass, creating a destructive, periosteal reaction was seen

status and cosmetic appearance, and informed consent was provided. The amputation was performed at the proximal phalanx level proximal of the tumoral tissue (Figure 2).

Figure 2. The amputation was performed at the proximal phalanx level proximal of the tumoral tissue

The amputated part was sent to the Pathology Department of our institution. In the pathological examination, the tumour was seen to be formed of nodules in a permeative pattern, which had occurred from scattered chondrocytes on a chondroid base (Figure 3). No tumoral tissue was observed in the surgical margin sections. These characteristics were evaluated as grade 2 chondrosarcoma. When the patient was discharged it was explained that she must move the adjacent joints. In the examination at 2 weeks postoperatively, the grip was full and there were no wound site problems (Figure 4). The patient is now in the second postoperative year and has no active complaints.

DISCUSSION

This case, which summarises the diagnosis and treatment of an 80-year-old patient, is one of the very few reports in literature of middle phalanx chondrosarcoma.

Chondrosarcoma is the most common primary malignant tumour of the hand and constitutes 4% of all hand malignancies.[8,9] It arises most from the proximal phalanx and metacarpal in the hand 5. Involvement of the middle and distal phalanges is extremely rare.[10] In current literature, treatment is applied surgically with curettage or excision.[11] As the tumour was destructive, permeative and expansile in character in the current case, ray amputation was recommended. However, as the patient did not wish the metacarpal to be removed, amputation was made proximal of the tumoral tissue.

The radiological characteristics of chondrosarcoma are cortical destruction, massive soft tissue swelling and extension, and a permeative pattern Chondrosarcomas generally emerge after the 5th decade of life and are slow-growing tumours.[12] Curettage and bone grafting, which are finger salvage procedures, are preferable to amputation because they cause late metastases.[6] When there is thumb involvement, salvage procedures are preferred as there will be significant function loss.[4] However, recurrence rates are 22%-62.5% because of local aggressive structures and close postoperative follow up is required. [5]

Mankin et al reported that as digital chondrosarcomas have a more benign course than other chondrosarcomas, finger-sparing surgical approaches should be considered.[13] However, in the current case, as the mass on the finger was both destructive and expansive, and there had been previous surgical treatment, ray amputation was recommended. Despite the recommendation for ray amputation, which has a better functional outcome and lower recurrence rates, the patient refused this treatment. Therefore, finger amputation was made proximal of the tumoral tissue.

Chondrosarcomas can generally be classified as primary or secondary. There may be malignant transformation in Ollier disease and Maffucci syndrome, and in multiple

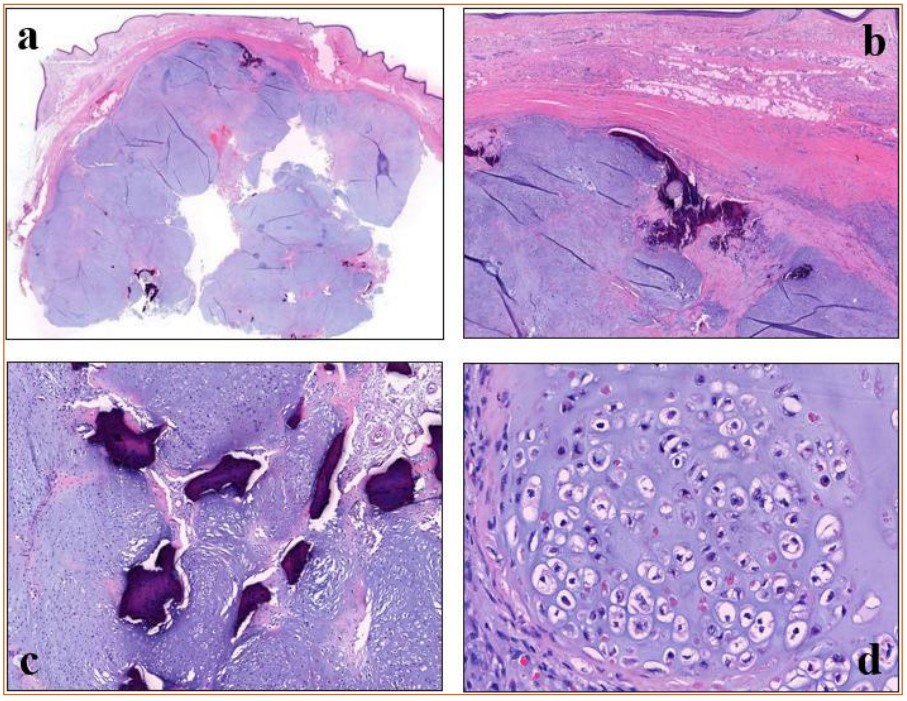

Figure 3. Tumour shows nodular or diffuse organization showing chondroid matrix formation b) Tumour has penetrated the soft tissue by infiltrating the bone cortex c) Permeation of intertrabecular spaces d) Tumour consists of atypical chondrocytes with increased cellularity and prominent nuclei

Figure 4 The patient's hand in the second week postoperatively

hereditary exostoses. Most secondary chondrosarcomas have been shown to originate from osteochondromas. The risk of malignant transformation in Ollier disease and Maffucci syndrome is 25% and 100%, respectively.[14,15] Cases have also been reported of transformation to chondrosarcoma from solitary enchondroma, synovial chondromatosis and chondromyxoid fibroma.[10] As the previous tests and data of the current case were not available it was not possible to determine whether this was a primary lesion or whether it had transformed from a benign lesion.

CONCLUSION

This is one of the rarely reported cases in literature of a middle phalanx grade 2 chondrosarcoma. The diagnosis and treatment of middle phalanx chondrosarcoma of this clinical case have been explained in the light of current literature.

ETHICAL DECLARATIONS

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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